

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference P/63610/GPTU18		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/GB 03/01028	International filing date (day/month/year) 11.03.2003	Priority date (day/month/year) 14.03.2002	
International Patent Classification (IPC) or both national classification and IPC H04B10/06			
Applicant MARCONI UK INTELLECTUAL PROPERTY LTD et al			

- This International preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

- This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 10.10.2003	Date of completion of this report 10.03.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer De Vries, J Telephone No. +49 89 2399-8949 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/01028**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-12 as originally filed

Claims, Numbers

1-17 received on 12.02.2004 with letter of 09.02.2004

Drawings, Sheets

1/3, 3/3 as originally filed

2/3 received on 12.02.2004 with letter of 09.02.2004

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1. and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1 - 17
	No: Claims	
Inventive step (IS)	Yes: Claims	1 - 17
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1 - 17
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

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Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1). Citations : D1 : US-A-6 222 660
D2 : US-A-5 953 690
D3 : US-A-6 157 022
- 2). The present invention relates to control of bias voltage of avalanche photodiodes.
- 3a). Attention is directed to D1 which shows a method and apparatus for controlling the bias voltage of an avalanche photodiode (col. 1 lines 5 to 9) by determining various constant power level curves over which the bit error rate is zero but does not discuss the timing of these measurements.
Furthermore, after the optical signal is converted to an electrical signal the error rate of this signal is measured and the bias voltage is adjusted in order to minimise the error rate (col. 3 lines 17 to 21) .
- b). Similarly to D1 , in D2 characteristic data curves are stored in a memory containing information of control functions over a range of operating conditions such as varying temperature and power supply voltage levels. This also involves providing a variable avalanche diode bias voltage to achieve the lowest error rate (col. 19 lines 25 to 37 and col 21 lines 12 to 50). The time interval at which the error rate is measured is set according to efficiency but no indication is given as to determining the tendency of the error rate to be increasing or decreasing and to adjust the time period accordingly.
- c). In D3 a method and apparatus is shown for controlling the bias voltage of an avalanche photodiode which compensates for temperature variation (see figures 2 and 3).
- d). Therefore in the prior art from the Search Report there does not appear to be a disclosure of or hint towards determining the increasing or decreasing tendency of the error rate in order to adjust the sample time period accordingly.
- 4a). Therefore independent claims 1 (method) and 8 (apparatus) appear to meet the requirements of Articles 33(2) and (3) PCT .
- b). The dependent claims 2 to 8 and 9 to 17 also meet the requirements of Articles 33(2) and (3) being respectively dependent upon claims 1 and 8 .

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- 5). Concerning the application the description was not amended to conform with the amended claims (see especially statement of invention on page 5 and Rule 5.1(iii)PCT).